

INTRODUCTION TO EMERGING ISSUES ON NANOPARTICLES IN THE FOOD CHAIN

Elke Anklam^{1*}, Hermann Stamm²

^{1,2} European Commission, Joint Research Centre, Institute for Health and Consumer Protection, Ispra, Italy

*Corresponding author - E-mail: Elke.ANKLAM@ec.europa.eu

Food can contain a number of different materials in the nanosize range (typically 1 – 100 nm), originating from different sources. Natural food ingredients in molecular form or minerals have usually a size of a few nm or even below. Food can be "contaminated" by nanosized particles through food processing, by nano-particulate agrochemicals or the environment. In recent years however the application of nanotechnology in food production and food packaging has experienced rapid development and has developed into a wide-ranging industrial business. A number of new processes and materials derived from nanotechnology can offer new food products with e.g. improved tastes, reduced amount of salt, sugar, fat and preservatives, increased bioavailability etc. For example the nutritional value of food can be improved by nano-sized nutrients and supplements or encapsulation of nutrients; new tastes/sensations and creamier textures can be achieved by nanostructuring of food ingredients with less or no additional fat. For food packaging applications, such developments have led to new materials with improved mechanical, barrier and antimicrobial properties. Applications of nanotechnologies in food has raises a number of safety, environmental, ethical, and regulatory issues. The main concerns relate to the lack of knowledge with regard to the interactions of nanosized materials at the molecular of physiological levels and their potential effects and impacts on health. The presentation will give a short introduction into the principal issues on the use of nanomaterials in food and feed and related regulatory aspects.

Keywords: nanoparticles, food, applications, regulations